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Abstract:

The landscape of global governance is changing. Growth in the number of intergovernmental organizations (IGOs) has slowed markedly, while other organizational forms — from transgovernmental networks to private transnational organizations (PTOs) — have emerged and are expanding rapidly. Organizational ecology theory explains such changes in organizational diversity, growth rates and composition with reference to the suitability of organizational forms for current conditions, inherent growth rates and changes in conditions of resource competition over time. We supplement these variables with a micro-level focus on organizational strategies. IGOs and PTOs behave differently because they vary in authority and strategic flexibility. IGOs, backed by the authority of states, seek to dominate and protect their "turf"; they expand their activities to fill the available regulatory space, constraining further growth. But PTOs are more nimble, and so can adopt strategies to avoid costly competition, such as finding sparsely occupied policy niches, facilitating rapid growth. Evidence from the domain of climate change supports the plausibility of our theory.

Consider two different worlds of international politics. World One is a world of states, interacting with one another in what Kenneth Waltz famously referred to as "anarchy."[2] These states have relationships of cooperation and conflict: they trade, their citizens migrate, they become involved in quarrels and wars, and they sometimes enter into agreements. However, intergovernmental organizations and non-state actors are insignificant in number and influence. World Two, in contrast, is populated not only by states but also by intergovernmental organizations (IGOs), some with broad multilateral participation, others with narrower memberships. In addition, non-state actors from civil society, business and other sectors pursue their own governance goals transnationally, but lack the coercive power and popular loyalty of states.

We now live in World Two: states are no longer the sole source of authority. IGOs have grown apace since 1945. The UN system now includes dozens of specialized agencies, programs, commissions and other entities; what is now the European Union has expanded dramatically; other functionally-oriented institutions, notably the World Trade Organization, have appeared and gained influence; states have created diverse plurilateral "clubs," such as the G-20; and multilateral treaties have established numerous organs. The UN Environment Management Group alone includes 46 IGOs and treaty bodies. [3]

Over the last forty years, moreover, a range of new governance forms has emerged and rapidly expanded. These include transgovernmental networks, such as the Basel Committee on Banking Supervision; transnational networks of sub-state governments, such as ICLEI – Local Governments for Sustainability; and public-private partnerships, like those recognized at the 2002 Johannesburg World Summit on Sustainable Development.[4] This trend led the *Yearbook of International Organizations* in 1981 to create a new category of organizations – those with "non-formal, unconventional or unusual" structures.[5] In parallel, informal lawmaking has trended upward since the mid-1990s, indicating a growing preference for instruments less institutionalized than treaties.[6]

Even more striking, private transnational organizations (PTOs) have proliferated rapidly, formed by diverse combinations of actors from civil society, business and other sectors. While many PTOs engage in advocacy or service provision, we focus here on those that adopt, monitor and enforce standards of conduct, especially for business, on regulatory issues such as worker rights and environmental protection. As recently as 1985 such private regulatory standard-setting barely existed.[7] Yet today, in climate change alone Bulkeley et al. identifies 60 transnational institutions, most of them PTOs or public-private collaborations;[8] Abbott modifies that database to analyze nearly 70 institutions;[9] and Green analyzes relationships among 30 transnational institutions that set

standards for carbon measurement and management.[10] This complex and shifting constellation of institutions is the hallmark of our era of global governance.

Surprisingly, however, during the present century the growth rates of IGOs and transnational institutions have diverged sharply. Since 1990, the number of non-governmental organizations has grown at an average annual rate of nearly 10% -- compared to 3% for IGOs, a rate that has declined since 2000.[11] And most of the transnational climate institutions identified by Bulkeley et al., Abbott and Green have been created since 2000. Yet over the same time period, the formation of IGOs has decreased by 20% compared to the previous decade – despite continuing increases in the interdependence of societies.[12] Similarly, in the 1990s, the heyday of environmental lawmaking, the number of multilateral agreements in force grew by 146%.[13] Between 2002 and 2012, however, this rate fell to 36%.[14] Joost Pauwelyn and colleagues go so far as to argue that international law is "stagnating."[15]

These developments present a compelling puzzle: *what explains the differential and changing growth rates, and thus the shifting composition, of the institutions that serve as global governors?*

The study of aggregate changes in the diversity and growth rates of organizations is known, following pioneering work by Michael Hannan and colleagues in the 1980s and 1990s, as *organizational ecology*. Organizational ecology "aims to explain how social, economic and political conditions affect the relative abundance and diversity of organizations and to account for changing composition over time."[16] Organizational ecology rejects the common understanding that institutional change occurs primarily through adaptation by existing organizations to new conditions. Instead, it emphasizes the process of *selection*: changes in the diversity and relative abundance of organizations stem from the entry and success of organizational forms well suited to the new conditions.[17] We adapt the organizational ecology approach to explain the shifting mix of organizational forms in global governance.

As a first pass at a large question, we contrast two broad types of organizations whose growth rates are diverging: intergovernmental organizations (IGOs) and private transnational organizations (PTOs). The theory we develop should apply equally, with suitable adjustments, to other organizational forms, but for clarity we address only two contrasting types here. We do not begin with any expectation about what the growth rates of IGOs and PTOs *should* be. We compare the responses of IGOs and PTOs to changes in social, economic and political conditions, and consider the implications of those responses for interactions within and between the two types, and therefore for changes in their relative abundance.

More than most organizational ecology scholars, we emphasize the *strategies* that organizations pursue to respond to opportunities, threats and constraints. We argue that organizational strategies are conditional both on features of the system – particularly differences in power and opportunities for adaptation – and on characteristics of particular organizational forms, especially strategic flexibility. In short, to explain macro-level developments in growth rates and relative abundance, we turn to micro-level strategies as mechanisms that link causal factors with outcomes.[18]

Organizational ecology identifies two main categories of causal factors[19] that affect the growth rates of organizations;[20] to these we add a third. The first category relates to differences in the intrinsic growth rates of organizational forms; we argue that private transnational organizations have higher intrinsic rates than intergovernmental organizations because their strategic flexibility reduces the transaction costs of entry. The second category relates to conditions of competition among organizations and organizational forms. The effects of these conditions display striking regularities over time: the number of organizations rises rapidly after a suitable organizational form appears, while competition is limited, but levels off and often falls later on as competition intensifies. We argue that PTOs are at an earlier stage of development than IGOs, and so face less costly competition; in addition, IGO strategies make competition among them particularly intense. Finally, we argue that at *any* stage of development, strategically flexible PTOs can manage competition more effectively than relatively inflexible IGOs. This should facilitate continued expansion of PTOs.

Part I presents key concepts from organizational ecology and institutional theory. Parts II and III develop our theory. Part II introduces organizational strategies, highlighting the systemic conditions that determine which strategies are available and the impact of strategic flexibility on the ability of organizations to adopt particular strategies. Part III presents our three causal arguments regarding the relative growth rates of IGOs and PTOs. Part IV illustrates the workings of the causal mechanisms we identify. This discussion is in the nature of a "plausibility probe:" because the causal factors we identify have not yet been sufficiently investigated, we examine a "most-likely case" in which their impact should be evident.[21] We focus on climate governance, a domain in which numerous IGOs and PTOs seek to affect policy outcomes.[22]

I. Key Concepts

An *institution* is a set of closely connected rules and practices that prescribes behavior on particular issues. Sociologists speak of "the institution of religion" or of

marriage; these might be called "diffuse" institutions, as they involve general practices whose specific features vary across place and time. In contrast, we focus on *specific institutions*: sets of closely connected rules and practices designed to achieve specific purposes.[23] The UN Framework Convention on Climate Change (UNFCCC) and the Montreal Protocol regime on ozone-depleting substances are specific institutions.

Institutions have varying degrees of agency, the quality that allows them to make strategic choices. Institutions capable of exercising agency are referred to as *organizations*.[24] Intergovernmental organizations such as the European Union and United Nations Environmental Program (UNEP), and private transnational actors such as the Greenhouse Gas Protocol and Forest Stewardship Council (FSC) are organizations. Organizations adopt strategies to respond to opportunities, threats and constraints in their environment.

Organizational ecology focuses on *populations* of organizations. Because the theory emphasizes the process of selection, it is concerned with factors that affect the "vital rates" of organizational forms within particular populations – especially their rates of "birth" (founding) and "death" (dissolution). Vital rates determine the overall growth rate and, over time, the relative abundance of different organizational forms. Exogenous factors such as environmental changes influence vital rates, but the theory "places attention squarely on *interactions within and between populations of organizations*.[25]

A population can be defined based on common organizational features, such as goals, core technologies and forms of authority.[26] A population defined in this way usually forms a recognizable class, such as trade unions, hospitals or restaurants.[27] As with those groups, however, individual members may vary in size, resources or other features; for example, some may be generalists, others specialists. Populations can also be defined by social relationships and boundaries. Populations are kept distinct by "segregating factors," such as separate social networks and institutional processes that reinforce separate identities. But "blending processes," such as restructurings that recombine organizational features, can muddy population boundaries.[28]

Among climate change PTOs, for example, organizations that set standards for and certify emissions reduction credits for sale in the voluntary carbon market might constitute a population. All members of the population pursue similar goals, apply similar "business models," rely on similar forms of authority, share an identity and participate in a densely-connected social network. Organizations that manage energy projects might constitute a distinct population, distinguishable on all of these features. Within each population, some organizations will have larger budgets and market shares, more stringent standards and other differences.

In ecological terms, the most fundamental feature unifying a population is its members' dependence on a common set of resources. Because of this common dependency, all organizations within a population respond similarly to changes in the environment. A population can thus be seen as occupying an ecological *niche* defined by its required resource set: "the fundamental niche of an organizational form consists of the social, economic, and political conditions that can sustain the functioning of organizations that embody the form."[29]

For example, climate change PTOs that set voluntary standards for and certify carbon credits require resources that include: standard-setting authority recognized by market participants, especially project managers (which choose which standards to adopt for credit-generating projects) and purchasers of credits; legitimacy within relevant stakeholder communities; members, whether individual or organizational; funding, from contributors, fees, foundations or other sources; administrative resources, and the like. When organizations change their operations so that they require a different mix of social, economic and political resources – e.g., by targeting project development rather than standard-setting, or adaptation rather than mitigation of carbon emissions – they shift to a different niche and a different population. Populations that affect one another's resources form an ecological community that co-evolves within their shared environment.

Finally, when the resources a population requires are abundant, members can expand their numbers and activities with little constraint; the "carrying capacity" of their niche is high. When resources are scarce, congestible or exhaustible, however – as is normally the case – carrying capacity is limited and organizations will be forced to compete. As a result, their rules or standards will increasingly "bump into" one another.[30] This condition is referred to as *institutional density*. In such interactive settings, organizational strategies become crucial.

II. Strategies for Intergovernmental and Private Transnational Organizations

A. Strategies Available to Organizations

We begin from the premise that all organizations, public or private, pursue both substantive and organizational goals, which they must balance in their operations. Organizations seek both to maintain (or expand) their own autonomy and authority ("turf") and to achieve their substantive goals, such as slowing climate change.[31]

Assuming significant resource constraints, organizations (or their principals and staff) will often have incentives to compete for resources needed to further substantive and organizational goals. In particular, they will compete for authority –"the right to

rule." For both PTOs and IGOs, authority is largely derived from regulatory targets (private actors and states, respectively) that agree to accept rules the organizations promulgate; widely recognized authority leads to a larger "market share."[32] Organizations may also compete for legitimacy within wider publics and for financing, members and other resources. Competitive strategies aim to "eliminate … or otherwise cope with threats posed by rivals."[33] Their goal may be to maintain the institutional status quo, limit the resources of competing organizations, or achieve organizational dominance.

Yet organizations (or their principals and staff) also have incentives to avoid intense competition. Competition diverts scarce resources from other activities; it may lead to costly discord and conflict. Measures designed to gain certain resources, e.g., authority or fees from targets, may impede obtaining other resources, e.g., legitimacy within civil society. When multiple rules target the same actors, competition creates uncertainty about rule application, potentially allowing targets to free ride. In such cases, organizations may reciprocally adjust their activities to reduce resource competition. They may do so symmetrically, with all bearing roughly equal adjustment costs, or asymmetrically, with some bearing disproportionate costs. Alternatively, certain organizations may simply adapt, modifying their practices unilaterally.[34]

While organizations themselves must make the strategic decisions discussed here, founders of organizations must do so as well. In making the decision to "enter" a domain and niche by establishing a new organization[35] and/or initiating operations of a particular kind,[36] we expect that founders will consider not only their substantive and organizational goals, but also anticipated levels of resource availability, conditions of competition and available strategies. For example, Unilever and the World Wildlife Federation established the Marine Stewardship Council, a standard-setting PTO, in the mid-1990s to certify sustainably managed fisheries. In doing so, they identified and entered a niche with low institutional density and limited competition for authority and other resources, as few institutions then addressed fisheries management.

The availability of organizational strategies – competition, adjustment or adaptation – is shaped by two major factors. The first is *relative power*; power derives from the formal authority, legitimacy, and other material, ideational or positional resources that organizations possess. Power generates "go-it-alone" capacity: the ability *not* to have to adjust or adapt. Relatively powerful organizations within a population can avail themselves of more and different strategies than can relatively weak ones.

The second factor is the existence of *adaptive opportunities*, features of the environment that allow organizations to pursue strategies of adaptation. Where adaptive

opportunities are plentiful, an organization can unilaterally (re)focus its activities on areas characterized by more abundant resources and/or less intense competition (because of lesser institutional density), thereby shifting to a different population and niche. An organization might, for example, modify its rules to target different actors or behaviors within the same issue area (e.g., from carbon offsets to adaptation within climate). It might instead "exit" that domain, or exit from rulemaking by shifting to operational activities.[37] Weak organizations will often seize adaptive opportunities. As discussed below, however, their ability to do so depends on their individual strategic flexibility.

Where power disparities among organizations are large, powerful organizations can seek to dominate their domains (or compete with rivals of similar power), but will rarely be required to adjust or to adapt. Weaker organizations, however, will be forced to adjust (asymmetrically) or adapt. For them, the existence of adaptive opportunities is key. Where power disparities are small and adaptive opportunities are limited, organizations will be forced into costly competition. When adaptive opportunities are extensive, competition will be less severe.

To further clarify these strategic choices, we present a general typology of organizational strategies, each a set of possible actions conditional on the actions of other organizations, applied over time. We group strategies into three categories: *competition*, *adjustment* and *adaptation*. Strategies of adjustment and adaptation seek to limit resource competition; strategies of competition do not. We roughly order the categories, and the specific strategies within them, from those available to relatively strong organizations to those available to relatively weak ones. The categories are ideal types; most instances will not exhibit all characteristics we describe.

STRATEGIES OF COMPETITION

1. POWERFUL ORGANIZATIONS: DOMINATE

Powerful organizations can often exclude weaker competitors, actual and potential, from a niche or subordinate competitors to their own policies. IGOs that possess formal authority and sufficient support from powerful states may be able to exclude other IGOs from broad areas of activity. For example, with member state support, the WTO seeks to control international trade issues broadly conceived, incorporating issues into its rule system, as with intellectual property rights, and (indirectly) policing institutional actions that impinge on its rules, such as environmental agreements authorizing national trade measures. Yet domination is difficult, and requires homogeneous state preferences: preferential agreements fragment the trade regime, and domains such as investment

remain largely outside the sway of the WTO. In theory, however, states could vest an IGO with exclusive rulemaking authority, including the authority to exclude all rivals.

In contrast, because PTOs are created by non-state actors rather than by states, they generally cannot dominate or exclude other private organizations from their niches. PTO rules are almost always voluntary; regulatory targets can refuse to adopt them or adhere to those of a different PTO, forcing continued competition. Only states could vest PTOs with exclusive rulemaking authority. Short of that, delegation of authority, endorsement and other support from states or IGOs may enhance PTOs' ability to dominate.[38]

2. ORGANIZATIONS OF COMPARABLE POWER: COMPETE

Organizations with power comparable to that of rivals will seek to maintain or gain authority and other resources through competition. Competition is also available to stronger organizations if attempts to dominate are unsuccessful. Among IGOs, the International Civil Aviation Organization and UNFCCC, as well as the European Union, compete to regulate aviation carbon emissions. Among PTOs, forestry certification schemes such as FSC and the Programme for the Endorsement of Forest Certification (PEFC), based in civil society and business respectively, compete vigorously for authority, adherents, legitimacy and financing. When competing organizations possess different levels of power, however, competition may drive the weaker to adjustment or adaptation. For example, FSC and PEFC compete for approval from the UK government, which utilizes PTO standards in its procurement policies; when the UK concluded that PEFC standards did not meet its transparency requirements, PEFC was forced to adopt new governance practices.[39]

STRATEGIES OF ADJUSTMENT

3. ORGANIZATIONS OF COMPARABLE POWER: SYMMETRIC ADJUSTMENT

Organizations with comparable power may seek to avoid costly competition for resources, reaping joint gains, by mutually adjusting their activities, sharing the resulting costs more or less equally. IGOs adopt this strategy relatively frequently, where domination is unavailable, competition expensive and adaptive strategies tightly constrained. Often, however, adjustment consists of relatively superficial coordination, such as sharing secretariat facilities, meeting jointly or sharing monitoring and assessment procedures.[40] PTOs may also adopt this strategy, although low-cost adaptive opportunities are often more readily available to them.

4. WEAK ORGANIZATIONS: ADVERSE ASYMMETRIC ADJUSTMENT

Organizations with disparate power, including IGOs and PTOs, may also seek to reduce resource competition within their populations by mutually adjusting their

activities, explicitly or implicitly, perhaps following an attempt at domination by the stronger organization or a period of competition. In these circumstances, however, adjustment will be asymmetrical and adverse to the weaker organizations, which will be forced to make more extensive adjustments and bear greater costs, or to adapt by shifting their activities to a different niche, as discussed below

STRATEGIES OF ADAPTATION

5. WEAK ORGANIZATIONS: FIND A NICHE

Weak organizations will be unable to compete head-to-head with significantly more powerful ones in their population. Adverse asymmetric adjustment is a feasible strategy, but may entail bargaining costs. Weak organizations may therefore prefer unilateral adaptation (including anticipatory adaptation on entry), so long as adaptive opportunities are available at reasonable cost.

The principal adaptive strategy is to shift an organization's activities to a niche in which resources are more abundant, institutional density lower, or powerful competitors fewer, so that competition is less intense.[41] A niche might even be largely empty, as where targets or behaviors are completely unregulated; in these cases, an organization essentially constructs a new niche. For example, when FSC was created, there were no binding international rules governing sustainable forest management (only non-binding principles promulgated by the UN Forum on Forests) and no international norms addressing private forest management practices. Another niche-seeking strategy is to shift to activities that complement those of more powerful organizations. The resulting association can increase organizational power and provide greater access to resources such as authority, legitimacy and financing.

Figure 1 depicts these strategies and their potential outcomes. At the top is the most ambitious strategy – compete, with hopes of dominance. If this strategy is not tried, or fails, the next most ambitious strategy is adjustment. If that strategy is not tried, or fails, an organization can adapt, finding a niche or exiting.

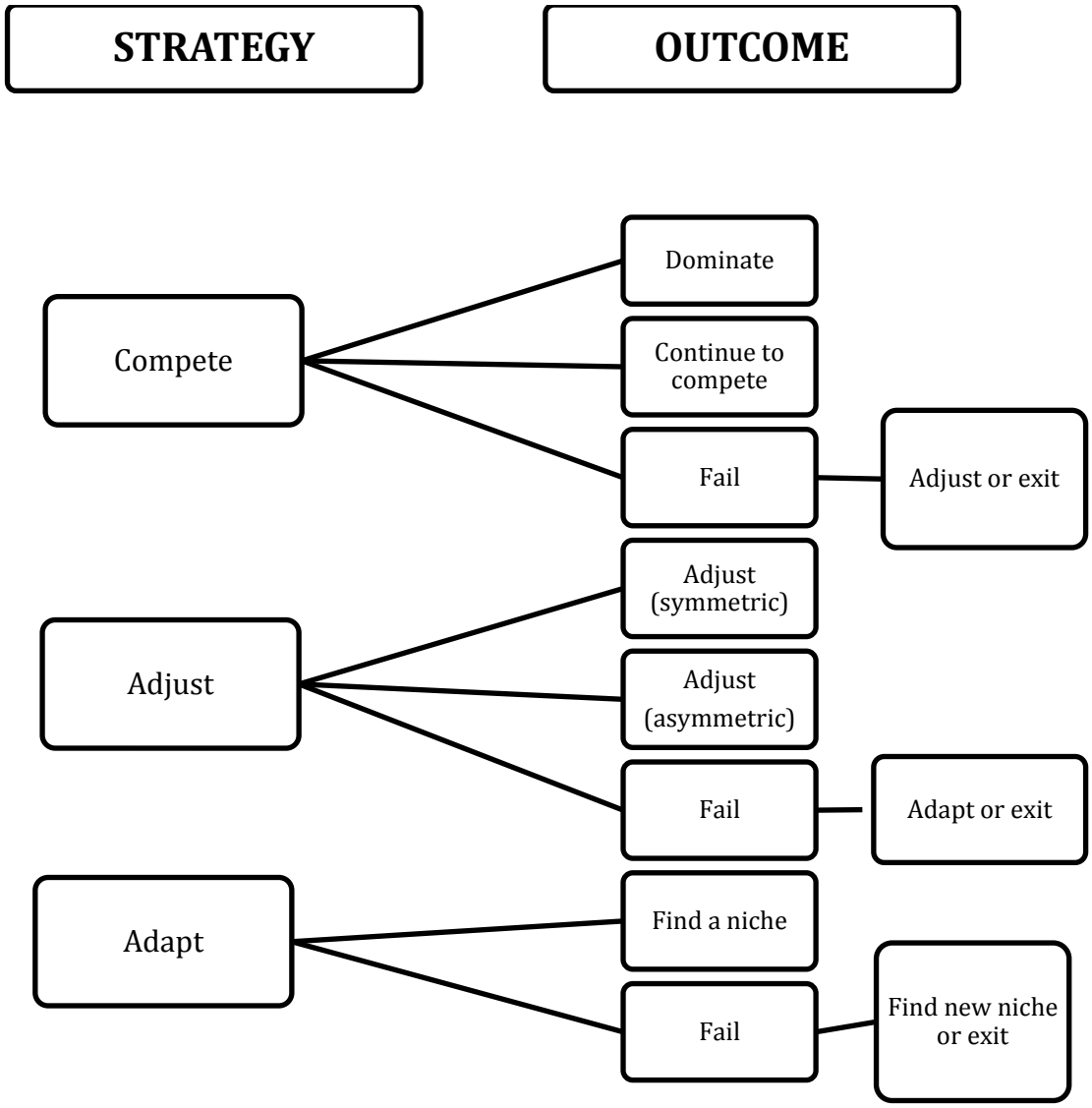


Figure 1. Organizational Strategies and Outcomes

B. Variations in Strategic Flexibility

To understand how organizations actually employ strategies of competition, adjustment and adaptation, we must consider not only relative power and the availability of adaptive opportunities, but also internal organizational characteristics, particularly the ability to pursue available strategies in timely fashion. We refer to this as *strategic flexibility*. An organization's strategic flexibility depends particularly on its autonomy, reflecting features such as the preferences of principals and the oversight mechanisms available to them. Organizational mandates and leadership quality also affect flexibility.[42]

Like adaptive opportunities, strategic flexibility is especially valuable for weak organizations within a population. Powerful organizations can always compete or seek to dominate, depending on the strength of rivals. Weak organizations, in contrast, must either adjust (symmetrically or asymmetrically), adapt or be forced to exit. So long as adaptive opportunities are available, organizations that are strategically flexible have more options than those that are rigid; in particular, they can adapt by moving to niches with more abundant resources or less intense competition.

Equally important for present purposes, strategic flexibility affects the behavior of entire categories of organizations. As a class, intergovernmental organizations are relatively inflexible. IGO secretariats and organs generally lack authority to take strong action without member state approval. States exercise close oversight through voting, budgeting and appointment procedures. Consensus or other restrictive decision rules frequently apply to the authorization of new initiatives. Charter mandates limit IGOs to specific domains – although these are often broadly defined, as in most specialized agencies. Treaty mandates may also constrain IGOs from abandoning any portion of their domains; committed member states may likewise reject strategies such as adaptation and exit even where they would reduce competition.[43] Of course, IGOs vary widely on these parameters; some have greater autonomy and flexibility than others.

Private transnational organizations also vary in their strategic flexibility, but as a class they are significantly more flexible than IGOs.[44] Especially where their principals have convergent preferences – e.g., in organizations founded solely by business or civil society actors – PTOs typically feature less intrusive oversight and simpler decision-making procedures; multi-stakeholder organizations such as FSC, though, have more complex procedures. Most PTOs have flexible mandates that can easily be modified, as well as entrepreneurial leaders and principals; they frequently delegate broad authority to officers.

These differences influence strategic choices by IGOs and PTOs throughout their life cycles – on entry, when founders determine the niches in which organizations will operate, and over time, as organizations deal with changes in their environment, changes in conditions of competition, and other threats and opportunities. At each stage, the greater flexibility of PTOs provides them a wider choice of organizational strategies.

III. Implications for Growth and Relative Abundance

Having explicated the micro-level of organizational strategies, we now return to our original macro-level motivating question: what explains the differential and changing growth rates, and thus the shifting composition, of the institutions that serve as global governors? In particular, why are private transnational organizations growing at such a rapid rate, while the growth of intergovernmental organizations has slowed? We advance three complementary arguments: IGOs and PTOs have different intrinsic growth rates; they face different conditions of competition; and strategically flexible PTOs can better manage competition than can relatively inflexible IGOs.

A. Intrinsic growth rates

Organizational ecology posits that organizational forms have different intrinsic growth rates, independent of resource availability and conditions of competition.[45] Some forms require substantial investments of personnel, resources and time to establish. Organizations of this type may ultimately become large, complex, stable and efficient, but few of them can be created. In addition, their long "gestation periods" make it more likely that environmental conditions will change – e.g., opportunities will disappear – by the time they begin operations.

Many IGOs are of this type. They are relatively large bureaucracies, utilize complex administrative procedures, and require properly qualified, experienced and representative staff. Unlike other large bureaucracies such as corporations, however, their formation requires costly political negotiations among states to resolve matters such as the degree of delegated authority, the breadth of organizational mandates, voting procedures, member state oversight mechanisms and financial support. These issues affect not only the effectiveness of IGOs, but also their autonomy and the distribution of costs and benefits among states. In short, for the same reasons their strategic flexibility is limited, IGOs face high costs of entry: the need to obtain agreement, participation and financing from numerous, diverse states makes their creation costly and difficult.

Other organizational forms, in contrast, can be established with relatively small investments. They have simpler structures than organizations of the first type and operate

at smaller scales. While they too require qualified and experienced staff, knowledge about the design and management of such organizations is more readily available and transferable. Such organizations may ultimately be smaller and less complex and stable than the first type, but many of them can be created. Their short gestation periods, moreover, allow them to respond quickly to changes in their environments, e.g., to new opportunities or needs, and to fine-tune their responses to the new situations.

Many PTOs are of this type. They operate at smaller scales than IGOs, and often have less complex structures and procedures, operating more as networks than as bureaucracies. (This point should not be overstated, however. Multi-stakeholder organizations such as FSC have complex interest representation structures; many influential PTOs, including members of the ISEAL Alliance, follow standard-setting and certification procedures that mimic domestic administrative law.[46]) More importantly, a few entrepreneurial actors can often found a PTO in a relatively short time and with little if any external oversight, as in the case of the Marine Stewardship Council, discussed above. In addition, PTO founders often share convergent preferences. Most PTOs have flexible mandates, so founders can establish institutional features on an experimental basis and fine-tune them to current conditions after formation. In sum, for the same reasons their strategic flexibility is high, PTOs face low entry costs.[47]

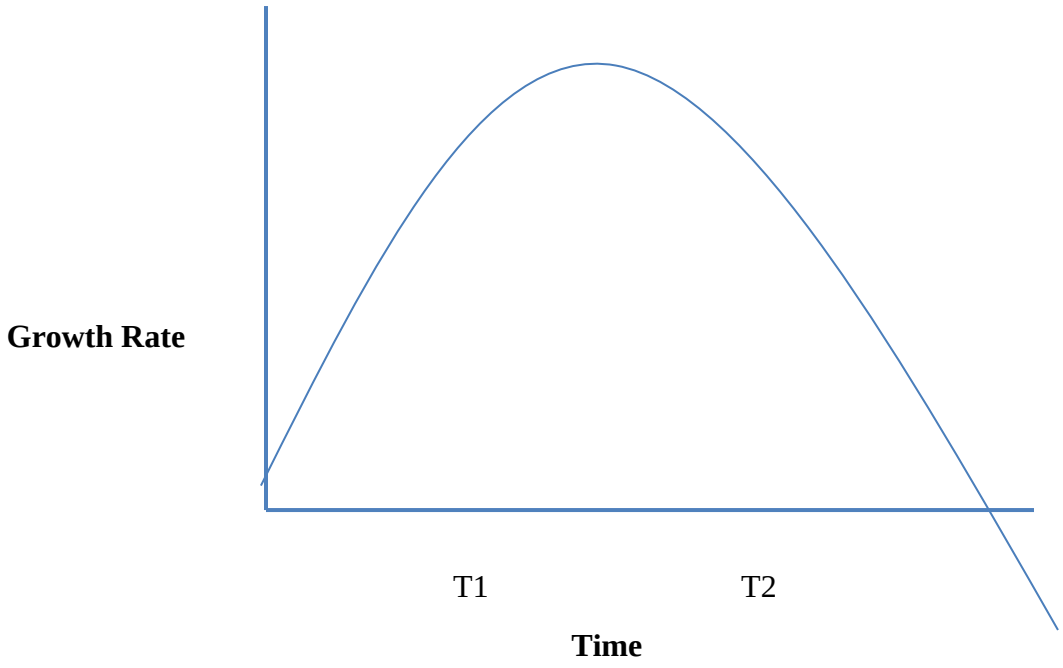
Organizations of these two types pursue classic, contrasting ecological strategies.[48] The slow-but-stable type (IGOs) produces few units (cf. offspring), but with heavy investment in each unit. As a result, most units that are founded survive; because of their stability, moreover, they can contend with difficult resource and competitive conditions. The rapid-but-fragile type (PTOs), in contrast, produces far more units but with less investment in each. As a result, the survival chances of individual units are relatively small; in favorable conditions, however, the form as a whole can expand rapidly. Rapid change in social, economic, political and institutional environments strongly favors the latter type.

B. Competition and Carrying Capacity

The carrying capacity of a niche – the number, size and activities of the organizations its resources can support – often changes over time. Some changes result from unpredictable exogenous developments such as increases or decreases in particular resources. But many changes in carrying capacity result from endogenous developments: interactions among organizations within a population. Here, organizational ecology posits broad regularities, observed among labor unions, financial institutions, life insurance companies, newspapers, breweries and other organizational forms over time spans of 100 to 300 years.[49] When an organizational form well matched to current

conditions first emerges, carrying capacity is high: the number of organizations grows rapidly at first; indeed, its rate of growth may increase for some time. Eventually, however, the growth rate levels off and declines, as depicted in Figure 2; it may even turn negative.

Figure 2: Organizational Growth Rates over Time



Hannan and colleagues' explanation for this regularity relies on two variables: *legitimation* and *competition*. Institutional density is key to both. First, when a new organizational form originates, its members need to be seen as legitimate for the environments they enter. Individual organizations will pursue varied legitimation strategies. In an ecological perspective, however, the mere fact that the number of such organizations is increasing will gradually make the form more widely acceptable under the logic of appropriateness;[50] it may become taken for granted.[51] Initially, then – over the rising part of the growth rate curve – there is a positive relationship between institutional density and growth rates through the mechanism of legitimation. But this process is subject to diminishing returns: eventually, additional organizations will not further enhance legitimacy.

Legitimation may well be a significant factor in the proliferation of PTOs: many have emerged very recently, and there has been lively debate over their legitimacy.[52] However, this explanation is empirically challenging. Because legitimation is an unobserved variable, even in organizational ecology theory, it is difficult to assess its explanatory power. For example, at what point in the process of organizational expansion does it cease to be an important factor?

We therefore focus on the second variable, competition, including the specific strategies different types of organizations employ. Organizations operating in a niche must compete for resources. As more organizations occupy the niche, resource constraints – i.e., carrying capacity – begin to bind: new organizations find it more difficult to gain adherents, members, financing and other resources; some existing organizations lose resources and are forced to exit.[53] Institutional density bends the growth rate curve downward toward stability or decline, as shown in Figure 2. Over time, then, there is a negative relationship between institutional density and growth rates through the mechanism of competition.

This pattern should hold equally for IGOs and PTOs. Crucially, however, IGOs are farther along the growth rate curve, reflecting their much longer historical development. We would place IGOs around the point labeled T2 in Figure 2 – their growth rates have plateaued and even declined. In contrast, we would place PTOs around the point labeled T1 – their growth rates have increased rapidly and are probably still increasing in many issue areas.

Even within this pattern, moreover, organizational strategies affect conditions of competition. A particularly important factor is the potential of IGOs – backed by the authority of member states – to dominate authoritative rulemaking within their niches.

This potential is an asset for individual organizations, but it shapes IGO strategies in ways that make their position on the curve especially sclerotic.

Because of their potential, IGOs compete to gain or maintain dominance of their domains, which are often broadly defined in organizational charters in both functional and subject-area terms. For example, the 1972 General Assembly resolution establishing UNEP mandated it to keep under review "the world environmental situation" and to promote international cooperation and appropriate policies "in the field of environment."[54] To dominate such extensive domains and attempt to exclude rivals, organizations must build out their activities to fully occupy their domains (and perhaps extend into other domains) – to the extent their resources and their principals allow.[55] IGOs create "emanations" as part of this strategy, further increasing institutional density.[56] Member states may support this approach, as it conforms to state-approved organizational mandates and avoids the costs of establishing wholly new IGOs.[57] At the same time, strategically inflexible IGOs find it difficult to abandon any areas within their mandates, and prefer not to do so, reinforcing the expansion strategy.

The strategy of fully occupying IGO domains – especially those broadly defined by states in the first instance – tends to fill the available organizational space. As a result, it reduces the number of empty or sparsely occupied niches (even for organizations flexible enough to seek them), largely precluding strategies of adaptation.[58] In addition, while the most powerful organizations (e.g., the Security Council and WTO) may be able to exclude actual and potential competitors, power differentials between many IGOs are relatively small; few can actually dominate or exclude. With both domination and adaptation constrained, IGOs are left to pursue costly strategies of competition in congested organizational spaces.

C. Strategic Flexibility and the Management of Competition

PTOs have less potential than IGOs for authoritative rulemaking, unless strongly backed by states; indeed, even their legitimacy as voluntary standard-setters is contested. Often, then, PTOs must compete for authority and legitimacy, as well as for adherents, funding and other resources. Because PTOs are far more strategically flexible than IGOs, however, their strategies affect conditions of competition very differently. *At any point on the growth rate curve*, PTOs can more easily pursue strategies that limit costly competition and enhance access to resources.

First, PTOs are more nimble than IGOs, for reasons discussed above. To the extent adaptive opportunities exist, PTOs have the flexibility to seize them. To be sure, some PTOs engage in protracted competition, sometimes leavened by mutual adjustment; the

rival forestry schemes FSC and PEFC are prime examples. But strategic flexibility leads many PTOs to pursue less exclusive or zero-sum strategies. In particular, PTOs frequently seek out unoccupied or sparsely populated niches, where they can thrive without the debilitating effects of intense competition. Once a suitable niche has been identified (or constructed), low entry costs enable PTOs to enter it rapidly.

While the niche-finding strategy allows individual PTOs to benefit by managing existing levels of competition, it also affects the conditions of competition for PTOs as a class. By shifting to more resource-abundant or less competitive niches, PTOs retreat from densely occupied domains rather than attempting to fill and defend them; as a result, the organizational space becomes less congested. Where PTOs construct new niches, in fact, they expand the organizational space. This implies that PTOs may be able to expand over a longer period of time than less flexible organizational forms before their growth rate curve turns downward.

Second, PTOs have a further strategic advantage: they can engage in activities that complement and enhance the policies of IGOs and other public institutions. Notably, the regulatory standards and related implementation mechanisms adopted by PTOs frequently parallel the rules and procedures of IGOs, but apply to business firms or other private targets rather than to states. In climate change, for example, the standards and mechanisms of the voluntary carbon market complement the Kyoto Protocol Clean Development Mechanism, the European Trading System and other public carbon market initiatives. In other cases – as with the FSC and Marine Stewardship Council – PTOs adopt standards and procedures in areas where IGOs have been unable to act. In some circumstances this could be seen as competition, but IGOs may instead regard it as gap-filling, another form of complementarity.

By making themselves useful to public organizations, PTOs gain access to important resources. Relationships with IGOs and other governmental bodies can strengthen PTO authority, leading to broader acceptance, especially where support is strong and express. Similarly, such relationships enhance legitimacy within stakeholder communities responsive to IGO perceptions. IGOs can also provide material and ideational support. Such resources enhance the competitive position of PTOs within their own populations.

IGO-PTO relationships operate in both directions. IGOs often need mediators between themselves and the public and private actors whose behavior they ultimately must affect. In some cases, IGOs explicitly delegate authority to PTOs as agents.[59] In other cases they forge softer links through "orchestration," in which "an IGO enlists and supports intermediary actors to address target actors in pursuit of IGO governance goals."[60] Both relationships are mutually beneficial: they provide IGOs with access to

private targets, information and other capabilities they may lack, while reducing their transaction costs (as IGOs deal only with one or a few intermediaries rather than a multitude of targets); they simultaneously empower PTOs and provide them access to valuable resources and niches.

On this analysis, growth in the number of IGOs discourages further expansion of such organizations, because of a lack of available niches and persistent competition. Yet the analysis also implies that growth in the number of IGOs – at least to a point – *encourages* further expansion of PTOs by creating valuable opportunities for complementarity. In addition, IGO delegation and orchestration suggest that the growth of PTOs is providing opportunities for IGOs to expand their activities through intermediaries, even though their own organizational spaces are fully occupied.

IV. The Organizational Ecology of Climate Governance

In this section we probe the plausibility of our analysis by examining the global governance of climate change. Climate governance is a politically salient area with high and increasing density of intergovernmental and private transnational organizations. Organizations of both types adopt and implement rules and standards and engage in related operational activities.

We present preliminary evidence from climate governance that supports our major arguments in turn: (a) PTOs are currently expanding more rapidly than IGOs; (b) PTOs have higher intrinsic growth rates than IGOs; (c) IGOs pursue strategies of domination or competition, fully occupying their mandates and filling the organizational space; (d) PTOs, in contrast, utilize their strategic flexibility to seek niches with abundant resources and limited competition; and (e) PTOs complement IGO rules and policies to gain resources and enhance their competitive position.

A. Growth Rates and Composition

We begin with evidence about changes in the number and composition of organizations active in climate governance. As noted in the introduction, recent works have detailed the proliferation of public and private organizations in this domain. Hoffman catalogues almost 60 "climate experiments" involving diverse actors and organizations, including IGOs, NGOs and other transnational groups.[61] Similarly, Bulkeley et al. map the characteristics of sixty transnational climate change governance initiatives, all of which involve non-state actors as well as or instead of states.[62] Other

scholars have identified and analyzed numerous IGOs within the regime complex for climate change[63] and numerous PTOs within its transnational equivalent.[64]

While these works document a diverse and expanding mix of organizations, none identifies any true climate-related IGO created since the UNFCCC Secretariat in 1992. The intergovernmental process has certainly produced initiatives, subsidiary bodies and financial mechanisms, but no new IGOs. By contrast, the number of PTOs has exploded.[65] Most of Hoffman's climate experiments were created after 2001-02 (during what many view as the "nadir of the multilateral process"),[66] as were most of the transnational initiatives identified by Bulkeley et al. Of those initiatives, 75% involved standard-setting or monitoring; environmental NGOs were most likely to initiate such activities, leading almost 45% of all initiatives.[67] The voluntary carbon market, discussed further below, is structured around some 30 PTOs, most created in the last five years.

In sum, there is significant preliminary evidence in the climate domain for our basic premise: that PTOs are currently expanding in number far more quickly than IGOs, changing the organizational composition of governance.

B. Inherent growth rates

We argued that IGO have relatively high entry costs: they are large complex bureaucracies, and institutional design decisions require agreement on difficult substantive and distributional issues among diverse member states. PTOs, in contrast, have relatively low entry costs: they are smaller, less complex organizations, with flexible mandates, that entrepreneurs can establish rapidly. As a result, PTOs follow an inherently faster-growth strategy that thrives in changing conditions. Support for this argument is offered by a simple comparison between the arduous founding decisions under the UNFCCC and Kyoto Protocol and the rapid initiation of many PTOs.

The founding of climate-related financial mechanisms provides apt illustrations on the IGO side. The Adaptation Fund (AF) grew out of the Kyoto Protocol (KP), which required that a share of proceeds from Clean Development Mechanism (CDM) projects be used to fund adaptation activities in vulnerable developing countries.[68] In 2001, the KP parties voted to create a fund for adaptation and directed 2% of CDM proceeds to it. The KP parties adopted basic elements of the AF in 2005 and 2006, shortly after the Protocol entered into force. In 2007, they established its governance structure, negotiating a complex system of Board representation with guaranteed seats for the UN regions, least developed countries, small island developing states and UNFCCC Annex I states; they also named a temporary secretariat and trustee. In 2008, the parties established the Adaptation Fund Board and adopted rules and procedures, revised in

2009. The Adaptation Fund approved its first project in 2010; as this is written it had disbursed only $55 million.[69]

An equally fraught process characterizes establishment of the Green Climate Fund (GCF), intended to become the main financial instrument of the UNFCCC.[70] The GCF was proposed at the 2009 Copenhagen Conference of the Parties (COP) to the UNFCCC and included in the Copenhagen Accord. The 2010 Cancun COP formalized the commitment to establish the GCF and established a Transitional Committee to design it. The Committee recommended some basic design elements, including a Board with multiple guaranteed seats like those on the Adaptation Fund Board; the 2011 Durban Conference of Parties adopted these recommendations. However, Northern and Southern states were sharply divided over many aspects of the GCF design, and the governance structure approved at Durban was incomplete. The Board has been meeting since 2012, but still faces many important unresolved issues, including the GCF's relationship to the UNFCCC, mechanisms for capitalizing the Fund, the Fund's "business model" and operating modalities and the Board's own voting rules.[71] No official contributions have yet been pledged and no decision made on the scope of project funding. The Green Climate Fund is unlikely to become operational before 2014.

On the PTO side, in contrast, standard-setting organizations provide striking examples of ease of entry. In 2010, environmental NGOs (including the Natural Resources Defense Council) and socially responsible investor groups (including the CERES Investor Network on Climate Risk and California State Teachers Retirement System) established the non-profit Climate Bond Initiative (CBI).[72] CBI was created to develop standards for private sector "climate bonds," following the example of successful public bonds dedicated to supporting environmental projects. In 2011 – only a year later – CBI launched a prototype Climate Bond Standard focused on bonds backed by wind energy assets. This rapid entry is not unique: organizations such as CarbonFix and the Natural Forest Standard followed similar schedules.

The flexibility of PTOs allows them to operate highly efficient design processes for standards and procedures. Individual and organizational entrepreneurs (such as NRDC and CERES), familiar with governance needs and niche opportunities, initiate the process. The UN Environmental Program (UNEP) and other IGOs sometimes provide support, as UNEP did for the Global Reporting Initiative and Principles for Responsible Investment. Entrepreneurs convene expert technical advisory groups, organize stakeholder consultations and provide opportunities for public comment, typically online. These processes, and the resulting institutional designs, increasingly rely on learning from existing organizations.

C. IGO Competitive Strategies

We argued that IGOs, with state-based authority and broad organizational mandates, pursue strategies of domination or competition within their domains. Unable to cede any portion of their mandates, IGOs build out their activities to fully occupy their domains and exclude or compete with rivals. The result is to fill the available organizational space and limit the availability of niches.

This strategy is difficult to observe directly, and certainly to quantify. But it is reflected in diverse forms of organizational behavior. One is the widely noted phenomenon of "mission creep." Kahler argues, for example, that as issue areas are redefined (e.g., from environment to sustainable development) and new issues emerge, IGOs expand their activities to encompass the new frontiers, even to the point of institutional overload.[73] Gutner argues that this tendency, combined with the breadth and complexity of IGO mandates, undermines performance;[74] Einhorn argues that it impairs accountability.[75]

A second illustration is the phenomenon of "bandwagoning," whereby IGOs and treaty bodies link themselves to the discourse and policies of salient regimes such as climate.[76] This expansionary strategy seeks to stake out portions of neighboring domains, both to gain additional resources (in niches with greater carrying capacity) and to ensure that an organization is fully occupying its domain. For example, the Secretariat of the UN Convention to Combat Desertification (UNCCD) has "committed disproportionate attention to climate change in order to capitalize on the financial resources the climate regime has garnered."[77] Consistent with our theory, moreover, the UNFCCC opposed this maneuver, rebuffing UNCCD's efforts to create a joint work program.[78]

Finally, the behavior of the Rio Conventions provides supplementary evidence. The Rio Conventions, signed in 1992, include the UNFCCC, UN Convention on Biological Diversity and UN Convention to Combat Desertification. Like many environmental agreements, they have significant substantive overlap. For example, land conversion is a common catalyst for climate change, destruction of biodiversity and desertification; some sources of biodiversity are significant sources of greenhouse gases when destroyed. Accordingly, policy measures under one convention necessarily affect the others, sometimes negatively. For example, the CDM recognizes monoculture tree plantations—a clear threat to biodiversity. Conversely, properly designed forestry projects can both combat climate change and preserve biodiversity.[79] Similar scope for cooperation or cooperation exists in renewable energy (hydro, wind and solar).

The Rio Conventions have recognized the aspects of rule overlap, but have taken few concrete actions to address them. In 2001, the three Secretariats created a "Joint Liaison Group" (JLG) to share information and coordinate efforts. One clear goal was to reduce costly competition: the decision "[u]rges Parties to take steps to harmonize policies and programmes…with a view to optimising policy coherence, synergies and efficiency in their implementation, at the national, regional and international levels."[80] Yet more than a decade later, the JLG is still focused on shallow forms of cooperation. Indeed, the Executive Secretary of UNFCCC recently argued that the JLG should *not* undertake concrete implementation activities or deal with international rules.[81] Its sole role, she argued, is to support Parties' activities at the national level. In short, the Conventions are pursuing the kinds of superficial mutual adjustment that maintain fundamental efforts to dominate and fill individual domains.

D. PTO Niche-Finding Strategies

We argued that PTOs, with their high strategic flexibility, seek out niches where they can access abundant resources and can avoid or limit costly competition (with notable exceptions), while advancing their substantive goals. The result is to reduce congestion in the organizational space. Our examples focus on niche-finding at the time of entry.

The Greenhouse Gas Protocol (GHGP) was created by two NGOs: the World Resources Institute and World Business Council on Sustainable Development, the latter private sector-based.[82] The organization's standard is a measurement tool that allows organizations to account for their carbon emissions. Different measurement tools are required for different scales of emissions: for example, tools used for carbon-offset projects are distinct from those used to measure national-level emissions. The Protocol was created for the "corporate level" of individual organizations.

GHGP first published its standard in 2001. At that point, the KP had just been signed, but had not yet entered into force. There was a smattering of national and private experiments with carbon markets, such as the UK Emissions Trading Scheme and Chicago Climate Exchange. In general, however, the organizational landscape was sparse, with few private initiatives and virtually none at the corporate level. UNEP was working on a corporate-level measurement tool, but its program had a slightly different audience and never gained traction.[83] Thus, GHGP entered an institutional environment where it could establish itself without worry of competition. By filling a recognized governance gap that UNEP had been unable to fill, moreover, it gained some benefits of complementarity. These conditions allowed it to gain political resources, avoid discord and establish itself as a credible and legitimate standard-setting organization.

Since then the Protocol has enjoyed significant success. It is currently the most widely-used corporate-level accounting standard.[84] It is the basis for a variety of other carbon accounting frameworks, including that of the International Organization for Standardization (ISO-14064, Part 1). Moreover, in 2012, 81% of Global 500 companies reported emissions using standards based on GHGP.[85] In short, the Protocol is *the* basis for corporate-level emissions accounting and reporting. Its staying power and high adoption rate evidence the success of its niche strategy.

The Verified Carbon Standard (VCS), which recently launched a new standard for REDD – reduced emissions from forest degradation and deforestation – followed a similar low-density logic. Although the UN and a number of private organizations have undertaken REDD activities, all have been project-based. There is an emerging consensus, however, that REDD activities are ideally undertaken across a jurisdiction, rather than as a discrete, geographically delimited projects. "Jurisdictional REDD" reduces the likelihood of "leakage" -- simply pushing deforestation from within the project area to other locations. Recognizing the lack of appropriate rules and tools, the VCS standard is designed to help states and subnational actors implement jurisdictional REDD. VCS' entry strategy was explicitly to select a low-density domain.[86]

The Climate Bond Initiative, discussed above, complements private carbon offset standards by providing financing for offset projects. Yet CBI entered a low-density (indeed a new, unoccupied) niche; as a result there is virtually no overlap or competition among these standards. The recently created Natural Forest Standard,[87] in contrast, entered a niche crowded with private sustainable forestry schemes. Yet it was able to limit competition by narrowly defining its mission: it focuses only on projects that are designed for "REDD+," are relatively large, involve conservation and restoration of natural forests, and do not involve commercial forestry.

The Green-e Climate Certified Carbon Offset program similarly shaped its mission to avoid competition with private offset organizations.[88] The Green-e standard addresses retail sellers of voluntary offsets. It requires that the projects underlying retail offsets be certified by organizations such as the Gold Standard and VCS; it complements those standards by verifying that credits sold to consumers are retired from inventories and by regulating consumer advertising and disclosures. These cases illustrate the "conscious parallelism" that niche-finding produces.[89]

Similar motivations sometimes lead PTOs to engage in mutual adjustment rather than niche-finding. For example, since 2010, the Global Reporting Initiative and the Carbon Disclosure Project have been working to align their disclosure standards. Other

organizations exploring standards alignment include FSC and the Gold Standard; VCS and the Climate, Community and Biodiversity Alliance, both offset standards; and the 4C Association (coffee production standards) and Rainforest Alliance/Sustainable Agriculture Network (which are both introducing climate standards). In addition, the Gold Standard is acquiring the private forest climate standard CarbonFix – a form of exit for CarbonFix and a means of entry for Gold Standard.

D. PTO Complementary Strategies

We argued that strategically flexible PTOs gain important resources by providing standards or services that complement the policies of IGOs and other public institutions. By entering complementary niches, PTOs gain authority, legitimacy and reputation, and possibly material resources, as well as some protection from costly competition. Again, our examples focus on niche-finding at the time of entry.

The Clean Development Mechanism (CDM) is the largest of three market-based mechanisms created by the KP. It allows developed nations to purchase carbon offsets produced from projects in the developing world to help achieve their emissions reductions commitments. The CDM thus creates a "compliance market" for offsets: the purchase of KP-monitored carbon credits advances developed countries toward their legally-binding reduction requirements.

After creation of the CDM, PTOs began creating their own carbon offset rules – often more stringent than CDM rules.[90] In addition, many PTO rules expand on the CDM through a "climate-*plus*" logic. The projects they certify provide emissions reductions, but also provide additional benefits: e.g., preservation of biodiversity, local economic development or long-term sustainability.[91] Private offset rules and the private market they support thus complement public rules in terms of meeting – and exceeding – CDM goals. Moreover, PTO standards have different regulatory targets. Whereas states use CDM to comply with their KP targets, most purchasers of private offsets are business firms, which use them to enhance their reputations and/or to prepare for future regulation.[92]

Not only do PTOs intend to complement the CDM; analysis of their rules reveals that they are in fact substantively complementary. A network analysis of public and private offset standards shows that, overwhelmingly, private standards choose to link to CDM rules: roughly 80% of all private transnational carbon offset standards recognize those rules.[93] Given the uncertain future of the KP and carbon markets, PTOs are "hedging their bets" by ensuring maximal compatibility with other standards – including

the dominant public standard, CDM. This compatibility increases the likelihood that a given private standard will continue to be usable in a future regulatory regime. In other words, creating complementary private rules helps reduce future switching costs. This strategy maximizes organizational autonomy, as standards need not compete directly with the CDM (though they do compete with each other). It also allows PTOs to maintain relevance—and thus survive—into the future.

Complementary PTO standards also arise in climate finance. In the mid-1980s, the World Bank and European Investment Bank issued "Green Bonds" and "Climate Awareness Bonds," respectively. Those bonds included financial terms equivalent to commercial bonds and were (highly) rated on the same bases; however, proceeds were "ring-fenced" for use exclusively in environmental projects. As discussed above, in 2010, environmental NGOs and socially responsible investors created the Climate Bond Initiative (CBI).[94] CBI's standard for private sector "climate bonds" complement public bonds and other forms of climate finance. CBI and voluntary offsets both involve niche-finding on entry through the creation new niches not previously identified as part of a governance domain.

In some areas, IGOs encourage PTOs to provide complementary standards. In 1997, UNEP – having long attempted to persuade businesses to report on their environmental impacts as a complement to treaty-based national reporting mechanisms – collaborated with the environmental NGO CERES to found and promote the Global Reporting Initiative (GRI). UNEP engaged in notable efforts to build the authority and legitimacy of GRI, including arranging its launch at the General Assembly, endorsing it and recruiting governments to host its headquarters. GRI is now an independent, multi-stakeholder institution, but a UNEP official sits on its board. Its standards for environmental reporting, which address carbon emissions and energy consumption among other behaviors, have become the global standard.

Finally, IGOs may afford PTOs opportunities to provide complementary services rather than standards. The 2002 World Summit on Sustainable Development (WSSD) encouraged public-private and private-private partnerships to develop operational projects that would further implementation of global norms, including the Rio Declaration and WSSD outcome; nearly 350 so-called Type II partnerships have been registered. The 2012 United Nations Conference on Sustainable Development (Rio+20) similarly encouraged private "voluntary commitments."

Conclusion

This paper was motivated by a puzzle: *why are private transnational organizations now growing at a markedly faster rate than intergovernmental organizations?* To address this puzzle we turned to the sociological theory of organizational ecology, supplemented by the strategic considerations of political economy. We analyzed the differing strategies of intergovernmental and private transnational organizations under conditions of institutional density, where resource constraints bind. IGOs can potentially dominate their niches because states grant them authority; PTOs cannot. However, PTOs are more flexible than IGOs: they can more readily locate niches with limited competition and abundant resources, and can more easily implement complementary strategies.

Based on these differences, we advanced three explanations for the divergence in growth rates: flexible PTOs have lower entry costs than IGOs and thus an intrinsically faster growth rate; PTOs are a relatively new organizational form and so face less intense competition; and at any point on the growth rate curve flexible PTOs can better manage competition than inflexible IGOs. Preliminary evidence from the field of climate change supports the plausibility of these explanations. Our analysis leads us to expect that the ecology of global governance will continue to change, with private transnational organizations and other flexible organizational forms constituting an increasing proportion of governance institutions.

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[2] Waltz 1959; Waltz 1979.

[3] http://www.unemg.org/index.php/2013-04-23-12-44-56/2.

[4] Keohane and Nye 1974; Slaughter 2004; Betsill and Bulkeley 2006; Andonova 2010; Backstrand 2008.

[5] Union of International Associations (UIA) 2009, 404.

[6] Voight 2012, 97. There is a decline from 2006-2010, the last four years of the sample, but overall levels of informal lawmaking remain twice as high as the initial point of growth.

[7] Abbott and Snidal 2009a; Abbott 2012; Green 2014.

[8] Bulkeley et al. 2012. The authors define "transnational" organizations as those formed by non-state actors instead of or in addition to states.
[9] Abbott 2012.
[10] Green 2013.
[11] Union of International Associations (UIA) 2009. Authors' calculations based on Figure 1.2.1.
[12] Ibid. Authors' calculations based on Figure 1.2.1.
[13] Authors' calculations based on data from Ronald B. Mitchell. 2002-2012. *International Environmental Agreements Database Project (Version 2012.1)*, available at: http://iea.uoregon.edu/page.php?file=home.htm&query=static. Accessed: 29 November 2012.
[14] Ibid.
[15] Pauwelyn, Wessel, and Wouters 2012, 2 (citing decrease in multilateral treaties deposited with UN Secretary General).
[16] Baum and Amburguey 2002, 304.
[17] Organizational ecology lacks a strong theory of the emergence of new organizational forms, and we do not address that question here. It is, however, an important issue for future research, as many forms of international and transnational organizations have emerged in recent decades.
[18] Some outcomes may be recursive: organizational strategies that affect the relative stability and growth of different organizational forms influence future strategies.
[19] Hannan and Freeman 1989, 117. We do not address a third category of factors – changes in broad environmental conditions that influence the "carrying capacity" of the institutional ecology – because its generality makes it difficult to theorize.
[20] Growth rates are the net of the "vital rates" of organizational "birth," "death" and merger.
[21] Eckstein 1975.
[22] Andonova, Betsill, and Bulkeley 2009; Bernstein et al. 2010; Hoffmann 2011; Keohane and Victor 2011; Abbott 2012.
[23] Keohane 1988.
[24] Compare the definition in Scott 1998, 25.
[25] Hannan and Freeman 1989, 92.
[26] Hannan and Freeman 1989.
[27] Analysts often use "native" or "conventional" classifications like these, based on understandings of participants, legal classifications and organizational practices. Ibid., 45–6; 62–5.
[28] Ibid, 57–60.
[29] Hannan and Carroll 1992, 28.
[30] Raustiala 2012.

[31] Biermann and Siebenhuner 2009.

[32] On the dynamics between rulemakers and ruletakers, see Lake 2009, chap. 1. On competition for ruletakers, see Green 2014, chap. 3.

[33] Wilson 1991, 181.

[34] Keohane 1984, 51–55.

[35] Entry by an individual organization must be distinguished from the emergence of a new organizational form.

[36] An organization that enters a new area of operations, as the World Bank began to address climate issues with the creation of the Prototype Carbon Fund, also makes an entry decision. On the Bank's decision, see Andonova 2010, 39–40.

[37] Hirschman 1970.

[38] On delegated authority, see Green 2008; Green 2014. On endorsement, support and other forms of "orchestration," see Abbott and Snidal 2009a; Abbott and Snidal 2009b; Abbott and Snidal 2010.

[39] Gulbrandsen 2013.

[40] Chambers and Green 2005. Institutional sociologists refer to such arrangements as "loose coupling:" substructures that organizations create to deal with perceived problems, without interfering with the "core work" of the organization. Meyer and Scott 1983.

[41] This is similar to Carroll's view of "resource partitioning" 1985 whereby specialist and generalist organizations self-sort into different activities which rely on different sets of resources, including consumers.

[42] On leadership, see Keohane 2010.

[43] Indeed, as the regime complex literature notes, states may promote adversarial strategies in pursuit of their individual interests. Raustiala and Victor 2004.

[44] Other organizational forms, such as transgovernmental networks and public-private partnerships, have intermediate levels of flexibility.

[45] Hannan and Freeman 1989, 117–23.

[46] ISEAL Alliance, Code of Good Practice for Setting Social and Environmental Standards, Code of Good Practice for Assuring Compliance with Social and Environmental Standards, available at http://www.isealalliance.org/our-work/codes-of-good-practice.

[47] Compare Bernstein et al. 2010.

[48] These are referred to as K and r strategies, respectively. Hannan and Freeman 1989, 118.

[49] Hannan and Carroll 1992, 7–12.

[50] March and Olsen 1998.

[51] Hannan and Carroll 1989, 51

[52] E.g., Bernstein and Cashore 2007; Black 2008.

[53] Hannan and Freeman 1989, 132–33.

[54] UNGA Resolution 2997 (XXVII), 15 Dec. 1972. Other examples include the WTO, World Bank and most specialized agencies.
[55] Kahler 2009, 192 suggests that IGOs often expand their activities to the limit of their material and cognitive resources, and even beyond.
[56] Shanks, Jacobson, and Kaplan 1996.
[57] Kahler 2009. This approach increases the likelihood of substantive overlap highlighted by regime complex theory. States may also encourage IGOs to overlap competitors' domains, the technique of "regime shifting." See Raustiala and Victor 2004; Helfer 2004.
[58] New niches may appear around new issues, however, as with the appearance of geoengineering within the climate domain.
[59] Green 2014.
[60] Abbott, Genschel, Snidal & Zangl 2013: 6
[61] Hoffmann 2011.
[62] Bulkeley et al. 2012.
[63] Keohane and Victor 2011; Michonski and Levi 2010.
[64] Abbott 2012.
[65] See, e.g. Green Forthcoming; Abbott 2012.
[66] Hoffmann 2011, 29.
[67] Bulkeley et al. 2012, 600.
[68] AF Secretariat, Background of the Adaptation Fund, available at https://www.adaptation-fund.org/documents.
[69] https://www.adaptation-fund.org/funded_projects/interactive
[70] See Lattanzio 2013.
[71] Schalatek 2013
[72] www.standards.climatebonds.net
[73] Kahler 2009. Such expansion may result from state mandates rather than IGO agency.
[74] Gutner 2005.
[75] Einhorn 2001.
[76] Jinnah 2011.
[77] Conliffe 2011.
[78] Ibid., 47.
[79] http://www.cbd.int/doc/publications/cbd-ts-10.pdf.
[80] http://www.cbd.int/decision/cop/?id=7194
[81] http://www.cbd.int/doc/reports/jlg-11-report-en.pdf, p. 2.
[82] This discussion is drawn from Green 2010..
[83] Ibid., 14.
[84] http://www.ghgprotocol.org/about-ghgp.
[85] https://www.cdproject.net/en-US/Pages/global500.aspx.

[86] http://v-c-s.org/news-events/news/groundbreaking-jurisdictional-redd-requirements-released.
[87] www.ecosystemcertification.org
[88] www.green-e.org
[89] Abbott 2012.
[90] For a full explanation of the emergence of the private offset market, see Author 2013.
[91] The extent to which private offset standards actually deliver these benefits is subject to debate.
[92] Peters-Stanley and Hamilton 2012.
[93] Green 2013.
[94] www.standards.climatebonds.net

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